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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,634	07/28/2003	Jean-Christophe Jacques Kling	02-015	4895

7590 03/28/2007  
PENTAGRAM LLC  
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EXAMINER
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LAUX, JESSICA L

ART UNIT	PAPER NUMBER
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3635

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/28/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/628,634	KLING, JEAN-CHRISTOPHE JACQUES	
	Examiner	Art Unit	
	Jessica Laux	3635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/28/2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 22 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification and drawings are not enabling to an elliptical cross section.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 2, 3, 22, 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 - it is unclear how an axis lying in a baseplane with the primary axis passes through the left-hand nodes, when the left hand nodes are distal from the primary nodes and axis.

Claims 2-3, and 23 all recite the limitation "said nodes", there is lack of antecedent basis for this limitation in the claims as claim 1 identifies three distinct nodes: primary, left hand and right hand. Appropriate clarification and distinction is required.

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Claim 24 is indefinite for reciting the limitation of struts "that are not nominally mutually coplanar"; there is lack of antecedent basis or structure and structural relationships recited in the claims to support such a limitation.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sanderson (RE 35085).

Regarding claims 1, 3, 5-6 and 12-17, 20: Sanderson discloses a node-and-strut structure comprising:

a vertebrae (figure 10, element 212, 214 or similar vertical element) including:  
one left-hand strut (for example, figure 10, elements 228 or 230) having a proximal portion and a distal portion,

one right-hand strut (figure 10 the diagonal strut opposite 230 or 228) having a proximal portion and a distal portion, and

one primary node (188 or 194) rigidly engaging the left-hand strut's proximal portion and the right-hand strut's proximal portion,

a primary axis passing through each of the primary nodes, the primary nodes each including at least 1% metal by weight (Col. 6, lines 63-67),

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several left-hand nodes, of metallic surface (Col. 6, lines 63-67; 200 or 198) each bearing against a respective one of said left-hand struts distal portions such that a left-hand axis lying in a baseplane with the primary axis passes through each of the left-hand nodes,

the left-hand axis forming with each of the left-hand struts an acute angle and, several right-hand, of metallic surface (Col. 6, lines 63-67; 200 or 198) each bearing against a respective one of said right-hand struts distal portions such that a right-hand axis parallel to the baseplane passes through each of the right-hand nodes, the right-hand axis forming with each of the right-hand struts an acute angle.

Sanderson does not expressly disclose at least six or eight vertebrae as disclosed above, however it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect six, or eight, structures, as above, in a nominally regularly spaced configuration with each other, where the left-hand struts all align nominally mutually parallel, and the right-hand struts all align nominally mutually parallel to create a large space frame for demonstrational purposes, as Sanderson discloses that any three dimensional space frame capable of filling a room is within the scope of the disclosed prior art (Col. 7, lines 4-5).

Sanderson also does not expressly disclose that the left hand acute angle is about equal to, or within  $0.4^\circ$ , of  $jx20.9^\circ + kx31.7^\circ + mx36^\circ + nx37.4^\circ$ , where  $j$ ,  $k$ ,  $m$ , and  $n$  are each an integer  $> 0$ ; or that the right hand acute angle is about equal to  $px20.9^\circ + qx31.7^\circ + rx36^\circ + sx37.4^\circ$ , where  $p$ ,  $q$ ,  $r$ , and  $s$  are each an integer  $> 0$ , in  $j>0$ , or  $k>0$  or

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$j=p=0$  or  $k=q=0$  or  $m=r=0$ ; however Sanderson does disclose that the left and right hand angles are acute (figure 10).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have the claimed acute angle because applicant has not disclosed that such an angle provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Sanderson's space frame, and applicant's invention to perform equally well with either any acute angle because they are all acute and would perform the same function of providing a strut for diagonal bracing equally well considering the design of a node and strut (space frame) structure.

Therefore, it would have been prima facie obvious to modify Sanderson to obtain the invention as specified in claim 1 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Sanderson.

Regarding claim 2: Sanderson discloses the node-and-strut structure of claim 1 as above, but does not expressly disclose that the nodes each primarily comprise an iron-containing alloy. Instead Sanderson discloses a plastic or metal for example aluminum or polycarbonate (Col. 7, lines 63-67).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the nodes of Sanderson to have an iron-containing alloy because applicant has not disclosed that such a claimed feature provides an advantage, is used for a particular purpose, or solves a stated

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problem. One of ordinary skill in the art, furthermore, would have expected Sanderson's space frame, and applicant's invention to perform equally well with either the material taught by Sanderson or the claimed iron-containing alloy because both materials would perform the same function of connecting the struts equally well considering they are both metals.

Therefore, it would have been prima facie obvious to modify Sanderson to obtain the invention as specified in claim 2 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Sanderson.

Regarding claim 4: Sanderson discloses the node-and-strut structure of claim 1 as above, but does not expressly that the struts each include at least 1% carbon fiber by weight. Instead Sanderson discloses struts made of solid wood (Col. 4, lines 40-41).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the struts of Sanderson to at least 1% carbon fiber by weight because applicant has not disclosed that such a claimed feature provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Sanderson's struts, and applicant's invention to perform equally well with either the material taught by Sanderson or the claimed at least 1% carbon fiber by weight because both materials would perform the same function of connecting the nodes equally well considering they are both strong and lightweight materials.

Therefore, it would have been prima facie obvious to modify Sanderson to obtain the invention as specified in claim 4 because such a modification would have been considered a mere design consideration which fails to patentably distinguish over the prior art of Sanderson.

Regarding claims 7-11: Sanderson discloses the node-and-strut structure of claim 1 as above, but does not expressly disclose that the left-hand and right-hand struts of each of the vertebrae form a primary angle that is nominally equal or complementary to an acute angle of  $b \times 20.9^\circ + d \times 31.7^\circ + e \times 35.3^\circ + f \times 36^\circ$ , where b, d, e, and f are each positive and/or an integer  $> 0$ , or any combination thereof as recited in claims 7-11, however Sanderson does disclose that the left and right hand angles are acute (figure 10).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have the claimed acute angles because applicant has not disclosed that such an angle provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Sanderson's space frame, and applicant's invention to perform equally well with either any acute angle because they are all acute and would perform the same function of providing a strut for diagonal bracing equally well considering the design of a node and strut (space frame) structure.

Therefore, it would have been prima facie obvious to modify Sanderson to obtain the invention as specified in claim 1 because such a modification would have been



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considered a mere design consideration which fails to patentably distinguish over the prior art of Sanderson.

Regarding claim 18: The node-and-strut structure of claim 1, further comprising several additional strut ends (figure 10) each bearing against a corresponding one of the left-hand nodes, in which the number of said additional strut ends is exactly T, where T is at least 4 (where figure 10 discloses at least four other struts attached to the left hand node (198 or 200)).

Regarding claim 21: The node-and-strut structure of claim 1, further including several inter-primary struts each coupled to a corresponding pair of the primary nodes (figure 10).

Regarding claim 22 (as best understood): The node-and-strut structure of claim 1, in which said nodes and several additional nodes are all positioned exteriorly (as they are on the exterior of the structure, figure 10) so as to form an oblong shape substantially resembling a tube (when 6 said structures are assembled in a vertical alignment as described above) having, further comprising several other, interiorly-positioned nodes (where when six said structures are positioned as above, several nodes would be interior of and end of the structure, thereby interiorly positioned).

Regarding claims 23-25: The claims recite the limitations of "assembling", "bringing...to bear", and "adding", which are the obvious method steps of assembling the structure as disclosed by Sanderson in claims 1-22 above, where the struts have an actual length.

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**Conclusion**


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jessica Laux whose telephone number is 571-272-8228. The examiner can normally be reached on Monday thru Friday, 6:30am to 2:30pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Friedman can be reached on 571-272-6842. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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